5. Balliet Heirs’ mine.
6. Balliet Brothers’ mine.
7. Ironton Railroad Co.’s mine.

“These three mines form but one excavation (pl. 25, C), being however separate properties. Taken together they form the largest mine in Lehigh County and more ore has been taken from it than any other. The mine has been worked for forty years, and ore is said to have projected above the surface of the ground before the deposit was opened. The mine is now 2,000 feet long and 800 feet broad and is 90 feet deep at the lowest point. Limestone can be seen at various points, occurring in such a manner as to be nearer the surface at the eastern portion of the excavation and deepening towards the western end. The sides of the excavation consist for the most part of a plastic clay, formed by the decomposition of damourite slate. The greater portion of this is colored yellow by ferric oxide, but a good deal of it is white, while other portions are colored pink to red by an oxide of magnesium. In addition to this, black clay (decomposed Utica shale) occurs in various portions of the mine, notably at the northwest end, in the centre, and at the eastern extremity. These different portions once formed a continuous bed, which has been removed in mining the ore. This black clay contains a very curious looking, nodular and concretionary iron ore, much resembling that met with at times in the slates of the coal measures and which is an argillaceous carbonate of iron, known as clay iron-stone. Its quantity is too small and it is too irregularly distributed to render it an object of exploitation. Of more interest to the mineralogist is the occurrence of native copper in this black clay, which is found in small filliform pieces. Its presence in the metallic state being probably due to the carbonaceous matter in the clay. The black clay varies from 1 to 10 feet in thickness, being occasionally as great as 20 feet. The only reason for supposing it to be decomposed Utica shale is its geological position and the fact that it contains graphite.

“Ore occurs in various parts of the mine, the greater portion of it below the black clay, especially at the west end close to the Ballietsville road, in the lowest portion of the mine near its centre, and along the northern side of the central portion.

“Black oxide of manganese (psilomelane) has been twice met with in considerable quantities, in both cases forming local beds. Once, three years ago, in a deposit over a portion of the brown hematite, from which a good many tons were taken, and more recently (1875) in the deepest portion of the mine, just above the limestone. The deposit has been exhausted since it was visited, several hundred tons having been taken from it. This last bed lay under the brown hematite ore, being separated from it by a red clay, and its presence in this position is most probably due to the greater solubility of the salts of manganese compared to those of iron.

“Limestone has been met with in place at various points in the bottom of the mine. Along the southern central portion of the pit the limestone has a northwest and west dip, while that which occurs in the eastern portion of the northern half has a southeast dip. These dips, taken in connection with the southeast dips on the Ballietsville road north of the mine and the limestone synclinal, separating the Ritter’s Mine, No. 186 (3), from the others, show a synclinal structure. The limestone has been met with much nearer the surface in the eastern portion of the excavation than in the western, and consequently much more ore has been taken out of the latter than the former. The synclinal structure and the fact that limestone has been struck in place in the deepest portion of that part of the mine belonging to the Ironton Railroad Co., leaves little, if any, ground of hope that much more can be met with there. West of that part where the manganese ore was met with, the limestone probably goes deeper, and it may be that ore will be found to a depth of thirty feet or more before meeting the limestone. There is every evidence however that the mine is approaching exhaustion, unless ore should be found west of the Ballietsville road. Even in such a case it is scarcely probable that any great quantity of it will be found, as the slate will probably intervene and cut it.